REMARKS

In this paper, claims 4-5, 7-12 were amended, and claim 6 canceled. Also, the specification was amended. Presently, the application contains claims 4-5 and 7-12. We request favorable reconsideration and allowance of all claims in the application.

RESTRICTION REQUIREMENT

Non-elected claims 1-3 and 5-18 have been canceled in accordance with the previous restriction requirement.

DRAWINGS

The office action objected to the drawings. We kindly request reconsideration, and politely insist that the drawings are satisfactory, as is. Figure 9, for example, illustrates a number of buffers, which are identified in the specification and drawings by the notation "-T." Figure 2b and 5b, for example, illustrate buffer trees. Furthermore, the application of buffers and buffer trees will be apparent to those of ordinary skill in the art having the benefit of Applicant's specification and drawings. Accordingly, the drawings are considered to be free of objectionable matter.

SPECIFICATION

The office action objected to the specification. The specification (as amended) is satisfactory.

35 USC 112 REJECTIONS

The office action objected to claims 4-12 under 35 USC 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that Applicant regards as the invention. The claims (as amended) fully comply with section 112.

As to the rejections aimed at the "substantially zero" clock period, this language (now in claim 4) is allowable in its present form: inserting dummy flip-

flops clocked by clocks all having a period of substantially zero. This step contributes to an overall logical operation, but would not make sense in a final, physical implementation. In the logical context of a circuit described by a hardware description language, we kindly submit that this operation is sufficiently clear.

ALLOWABLE SUBJECT MATTER

The office action objected to claim 11 as being dependent upon rejected base claims. The office action identified this claim as being allowable, if rewritten in independent form including the limitations of the base claim and any intervening claims, and also rewritten to overcome the section 112 rejection.

Having been rewritten claim 11 as required, claim 11 is now ready for allowance.

35 USC 102 REJECTIONS: OKTEM

The office action rejected claims 4-10 and 12 under 35 USC 102(e) as being unpatentable over U.S. Publication 20070174794 to Oktem. As discussed below, the claims are patentable because the applied art does not teach the features of the claims (as amended).

As an example, Oktem does not teach features of claim 4 such as "breaking any feedback paths in the digital circuit by inserting dummy flip-flops clocked by clocks all having a period of substantially zero." The office action cites Oktem's Figures 18-20 and 24 as to the following pre-amendment language: "breaking said cycles by inserting flip-flops clocked by clocks all having a period of substantially zero delay." However, there is nothing in these drawings to show clocks with a period of zero, and the office action does not identify any text in Oktem that teaches this feature. The office action cited confusion over how a clock can have a period of substantially zero. [Office Action: page 2] Indeed, the confusion on this point is a testament to the fact that Oktem's teaching is non-enabling as to the claimed feature. Moreover, the office action's admitted difficulty in clearly grasping this concept is further testament to its

nonobviousness.

Accordingly, claim 4 is patentably distinguished from Oktem. And, even without considering any individual merits of dependent claims 5, 7-9, and 11-12, these claims are distinguished because they ultimately depend from independent claim 4 (which is distinguished as discussed above).[1] Nonetheless, certain features of these dependent claims are noted to further distinguish over the applied art.

Taking claim 7 as one example, Oktem does not teach the step of "breaking said feedback paths is conducted so as to avoid breaking feedforward paths." Oktem seems to show some feedback paths in Figures 27-29, but does not teach breaking feedback paths by inserting dummy flip-flops, and where such breaking is conducted to avoid breaking feedforward paths.

Taking claim 10 as another example, Oktem does not disclose buffers having a load capacitance as claimed. The office action cited Oktem's Figures 18-26 in relation to this feature. Some diagrams, such as Figure 18 show elements labeled "C", but Oktem unambiguously shows that these "Cs" represent constant multiplication factors rather than capacitance. The remaining drawings appear to be irrelevant to the subject of capacitance. Moreover, Oktem's text does not mention anything whatsoever about capacitance.

In view of the foregoing, the pending claims are patentably distinguished over Oktem.

35 USC 102 REJECTIONS: SUARIS

The office action rejected claims 4-10 and 12 under 35 USC 102(e) as being unpatentable over U.S. Publication 20050132316 to Suaris. As discussed below, the claims are patentable because the applied art does not teach the features of the claims (as amended).

As an example, Suaris does not teach features of claim 4 such as

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[1]   Cf. If an independent claim is nonobvious under 35 USC 103, then any claim depending therefrom is nonobvious. In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). MPEP 2143.03.

"replacing flip-flops in said digital circuit with negative delay elements." Indeed, Suaris does not mention negative delay elements at all. In contrast, Suaris proposes that retiming involves repositioning, reconfiguring, and possibly removing circuit elements from the circuit design in order to reduce or increase the delay of a particular circuit path. [Suaris: para. 0041] However, negative delay is not discussed.

The office action proposed Suaris' Figures 5-7 and 12-20 as teaching negative delay elements. However, a careful review of these figures does not reveal any such disclosure. Suaris does discuss negative slack, but this is something else entirely, as it indicates that a signal does not propagate in sufficient time to meet the timing requirements of the circuit. [Suaris: para. 0004]

Suaris also lacks further features of claim 4, such as "breaking any feedback paths in the digital circuit by inserting dummy flip-flops clocked by clocks all having a period of substantially zero." The office action cites various paragraphs of Suaris', but these passages do not include anything related to the claimed feature. We kindly request a more specific explanation of what features from Suaris are thought to be relevant, and an indication of the Examiner's supporting reasoning.

Critically, Suaris contains nothing to show clocks with a period of zero. As mentioned above, the office action cited confusion over how a clock can have a period of substantially zero. [Office Action: page 2] Therefore, the confusion on this point is a testament to the fact that Suaris, like Oktem, does not provide any enabling teaching on the subject. Moreover, the office action's admitted difficulty in grasping this concept is further testament to its nonobviousness.

Accordingly, claim 4 is patentably distinguished from Suaris. And, even without considering any individual merits of dependent claims 5, 7-9, and 11-12, these claims are distinguished because they ultimately depend from independent claim 4, which is distinguished as discussed above. Nonetheless, certain features of these dependent claims are noted to further distinguish over the applied art.

Taking claim 7 as one example, Suaris does not teach the step of

"breaking said feedback paths is conducted so as to avoid breaking feedforward paths." The office action cited Suaris' Figures 7, 15, 18-20 in regard to this feature. However, these Figures do not seem to have any relevance, and there was nothing in the office action to explain the underlying reasoning. Several of these figures, such as 15 and 17-20 do not show any feedback paths. The remaining figures are flowcharts, and although some mention is made of a "forward trace," this does not have any apparent relevance.

As to claim 10, Suaris does not disclose buffers having a load capacitance as claimed. The office action cited Suaris' Figures 12-17 in relation to this feature. However, nowhere does Suaris mention anything about capacitance. The relevance of these Figures is lacking, and the office action did not explain its reasoning.

In view of the foregoing, the pending claims are patentably distinguished over Suaris.

REQUEST FOR FURTHER EXPLANATION

The office action took the approach of copying Applicant's claim language verbatim and annotating it with brief citations to the drawings of Oktem and Suaris. However, in many cases, the Figures did not seem to be applicable, and the office action did not explain any of its reasoning. In the interest of efficiency, we kindly request more direct and specific citations from the text of the reference, along with some clear explanation of the Examiner's reasoning.

The Supreme Court has recently made some useful observations as to obviousness that, by analogy, apply equally to rejections under 35 USC 102. For instance, the Court has emphasized that rejections "cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning."[2] The Court also required the analysis supporting a rejection to be made "explicit.[3] The Court specifically confirmed that this analysis

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2   KSR Int'l Co. v. Teleflex, 127 S.Ct. 1727, 1741 (2007).
3   Id.

is equally applicable to the courts and patent examiners.[4]

Relatedly, it is important for an examiner to properly communicate the basis for a rejection so that the issues can be identified early and the applicant can be given fair opportunity to reply. MPEP 706.02(j)

CONCLUSION

In view of the foregoing, all pending claims in the application are patentable over the applied art.

FEES

Applicant does not believe that filing of this Amendment will incur additional fees. However, the Commissioner is authorized to charge any fees due to the Glenn Patent Group Deposit Account No. 07-1445, Customer No. 22862. Applicant considers this document to be filed in a timely manner.

Respectfully Submitted,

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Customer 22,862

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4   Id. at 1734.